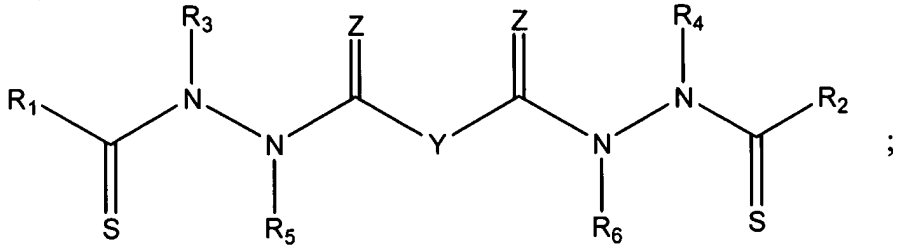
CLAIMS

What is claimed is:

1. A compound represented by the following structural formula:



;

or a pharmaceutically acceptable salt thereof, wherein:

Y is a covalent bond, phenylene group or a substituted or unsubstituted straight chained hydrocarbyl group, or, Y, taken together with both >C=Z groups to which it is bonded, is a substituted or unsubstituted aromatic group;

R_1 is an aliphatic group, a substituted aliphatic group, a non-aromatic hetereocyclic group, or a substituted non-aromatic hetereocyclic group;

R_2-R_4 are independently -H, an aliphatic group, a substituted aliphatic group, a non-aromatic hetereocyclic group, a substituted non-aromatic hetereocyclic group, an aryl group or a substituted aryl group, or R_1 and R_3 taken together with the carbon and nitrogen atoms to which they are bonded, and/or R_2 and R_4 taken together with the carbon and nitrogen atoms to which they are bonded, form a non-aromatic heterocyclic ring optionally fused to an aromatic ring;

R_5-R_6 are independently -H, an aliphatic group, a substituted aliphatic group, an aryl group or a substituted aryl group; and

Z is =O or =S;

provided that when Y is -CH_2-, R_3 and R_4 are both phenyl and R_5-R_8 are all -H, then R_1 and R_2 are not both methyl.

2. The compound of Claim 1 wherein:

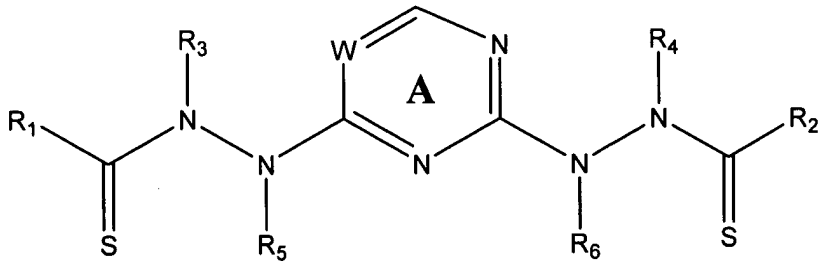
Y is a covalent bond or a substituted or unsubstituted straight chained hydrocarbyl group, or, Y, taken together with both >C=Z groups to which it is bonded, is a substituted or unsubstituted aromatic group;

R_1 is an aliphatic group or a substituted aliphatic group; and

R_2-R_4 are independently -H, an aliphatic group, a substituted aliphatic group, an aryl group or a substituted aryl group, or R_1 and R_3 taken together with the carbon and nitrogen atoms to which they are bonded, and/or R_2 and R_4 taken together with the carbon and nitrogen atoms to which they are bonded, form a non-aromatic heterocyclic ring optionally fused to an aromatic ring.

3. The compound of Claim 2 wherein Y, taken together with both >C=Z groups to which it is bonded, is a substituted or unsubstituted arylene group.

4. The compound of Claim 3 wherein the compound is represented by the following structural formula:

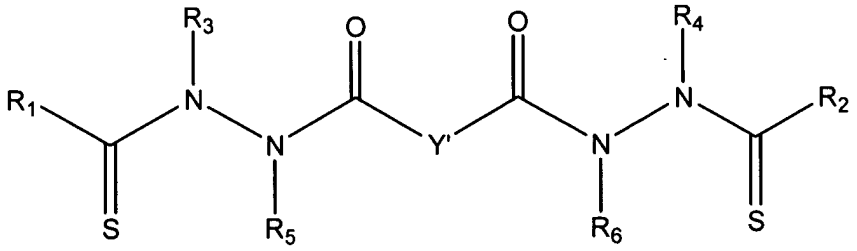


;

wherein Ring **A** is substituted or unsubstituted and W is -CH- or -N-.

5. The compound of Claim 2 wherein Y is a covalent bond or a substituted or unsubstituted straight chained hydrocarbyl group.

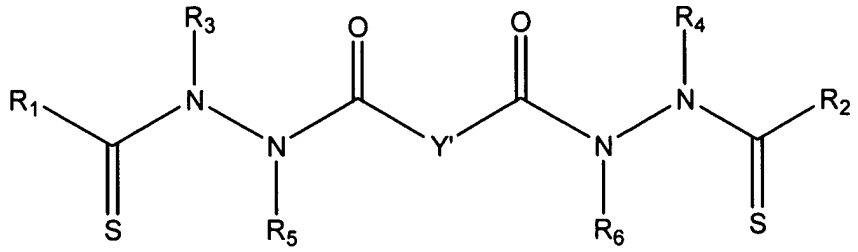
6. The compound of Claim 2 wherein the compound is represented by the following structural formula:



;

wherein Y' is a covalent bond or -CR_7R_8- and R_7 and R_8 are each independently -H, an aliphatic or substituted aliphatic group, or R_7 is -H and R_8 is a substituted or unsubstituted aryl group, or, R_7 and R_8, taken together, are a C2-C6 substituted or unsubstituted alkylene group.

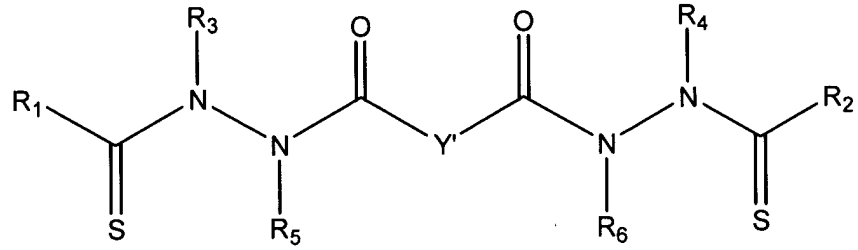
7. The compound of Claim 1 wherein the compound is represented by the following structural formula:



;

wherein Y' is a covalent bond or $-CR_7R_8-$, least one of R_1-R_2 is an aliphatic group, a substituted aliphatic group, a non-aromatic hetereocyclic group, or a substituted non-aromatic hetereocyclic group and R_5-R_8 are all –H.

8. The compound of Claim 1 wherein the compound is represented by the following structural formula:

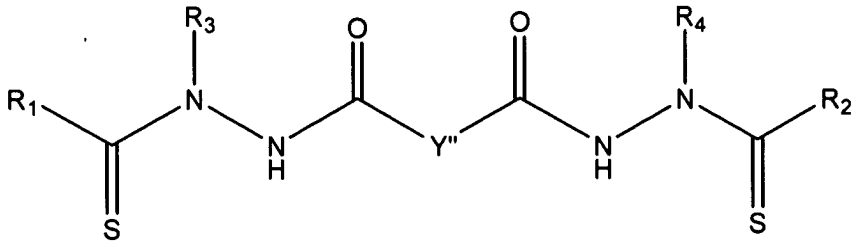


;

wherein Y' is a covalent bond or $-CR_7R_8-$, at least one of R_1-R_2 is an unsubstituted C3-C8 cyclic aliphatic group, a substituted C3-C8 cyclic aliphatic group, a substituted straight chained or branched aliphatic group, a substituted non-aromatic hetereocyclic group, or an unsubstituted non-aromatic hetereocyclic group and R_7 and R_8 are each independently -H, an aliphatic or substituted aliphatic group, or R_7 is -H and R_8 is a substituted or unsubstituted aryl group, or, R_7 and R_8, taken together, are a C2-C6 substituted or unsubstituted alkylene group.

9. The compound of Claim 8 wherein R_3 and R_4 are both methyl.

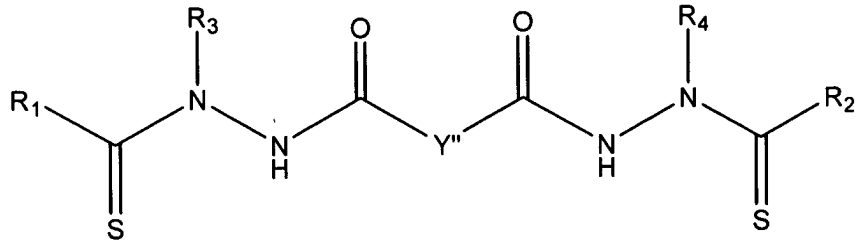
10. The compound of Claim 6 wherein the compound is represented by the following structural formula:



wherein Y" is a a covalent bond or $-CH_2-$.

11. The compound of Claim 10 wherein R_1 and R_2 are the same.

12. The compound of Claim 10 wherein the compound is represented by the following structural formula:



wherein Y" is a a covalent bond or $-CH_2-$ and R_1 is a substituted or unsubstituted aliphatic group and R_2 is a substituted or unsubstituted aryl group.

13. The compound of Claim 10 wherein R_1 and R_2 are the same and R_3 and R_4 are the same.

14. The compound of Claim 13 wherein R_3 and R_4 are both a lower alkyl group or a substituted lower alkyl group.

15. The compound of Claim 14 wherein R_3 and R_4 are both a lower alkyl group substituted with substituted with one or more groups selected from -OH, -Br, -Cl, -I, -F, $-OR^a$, $-O-COR^a$, $-COR^a$, -CN, $-NO_2$, -COOH, $-SO_3H$, $-NH_2$, $-NHR^a$, $-N(R^aR^b)$, $-COOR^a$, -CHO, $-CONH_2$, $-CONHR^a$, $-CON(R^aR^b)$, $-NHCOR^a$, $-NRCOR^a$, $-NHCONH_2$, $-NHCONR^aH$, $-NHCON(R^aR^b)$, $-NR^cCONH_2$, $-NR^cCONR^aH$, $-NR^cCON(R^aR^b)$, $-C(=NH)-NH_2$, $-C(=NH)-NHR^a$, $-C(=NH)-N(R^aR^b)$, $-C(=NR^c)-$

NH_2, -C(=NR^c)-NHR^a, -C(=NR^c)-N(R^aR^b), -NH-C(=NH)-NH_2, -NH-C(=NH)-NHR^a, -NH-C(=NH)-N(R^aR^b), -NH-C(=NR^c)-NH_2, -NH-C(=NR^c)-NHR^a, -NH-C(=NR^c)-N(R^aR^b), -NR^dH-C(=NH)-NH_2, -NR^d-C(=NH)-NHR^a, -NR^d-C(=NH)-N(R^aR^b), -NR^d-C(=NR^c)-NH_2, -NR^d-C(=NR^c)-NHR^a, -NR^d-C(=NR^c)-N(R^aR^b), -$NHNH_2$, -$NHNHR^a$, -NHR^aR^b, -SO_2NH_2, -SO_2NHR^a, -$SO_2NR^aR^b$, -CH=CHR^a, -CH=CR^aR^b, -CR^c=CR^aR^b,-CR^c=CHR^a, -CR^c=CR^aR^b, -CCR^a, -SH, -SR^a, -S(O)R^a, -$S(O)_2R^a$, non-aromatic heterocyclic group, substituted non-aromatic heterocyclic group, benzyl group, substituted benzyl group, aryl group or substituted aryl group wherein R^a-R^d are each independently an alkyl group, substituted alkyl group, benzyl, substituted benzyl, aromatic or substituted aromatic group, or,-NR^aR^d , taken together, can also form a substituted or unsubstituted non-aromatic heterocyclic group.

16. The compound of Claim 14 wherein R_3 and R_4 are both methyl or ethyl.

17. The compound of Claim 16 wherein R_1 and R_2 are both a substituted or unsubstituted aliphatic group.

18. The compound of Claim 17 wherein R_1 and R_2 are both a substituted or unsubstituted cyclic aliphatic group.

19. The compound of Claim 13 wherein R_3 and R_4 are both a heteroaryl group or a substituted heteroaryl group.

20. The compound of Claim 19 wherein R_1 and R_2 are both an aliphatic group or a substituted aliphatic group.

21. The compound of Claim 13 wherein R_3 and R_4 are both a substituted phenyl group.

22. The compound of Claim 21 wherein R_3 and R_4 are both a phenyl group substituted with at least one group other than an aliphatic group.

23. The compound of Claim 22 wherein R_1 and R_2 are both an aliphatic group or a substituted aliphatic group.

24. The compound of Claim 21 wherein R_3 and R_4 are both a phenyl group substituted with one or more groups selected from -OH, -Br, -Cl, -I, -F, -OR^a, -O-COR^a, -COR^a,

-CN, -NO_2, -COOH, -SO_3H, -NH_2, -NHR^a, -$N(R^aR^b)$, -$COOR^a$, -CHO, -$CONH_2$, -$CONHR^a$, -$CON(R^aR^b)$, -$NHCOR^a$, -$NRCOR^a$, -$NHCONH_2$, -$NHCONR^aH$, -$NHCON(R^aR^b)$, -NR^cCONH_2, -NR^cCONR^aH, -$NR^cCON(R^aR^b)$, -C(=NH)-NH_2, -C(=NH)-NHR^a, -C(=NH)-$N(R^aR^b)$, -$C(=NR^c)$-NH_2, -$C(=NR^c)$-NHR^a, -$C(=NR^c)$-$N(R^aR^b)$, -NH-C(=NH)-NH_2, -NH-C(=NH)-NHR^a, -NH-C(=NH)-$N(R^aR^b)$, -NH-$C(=NR^c)$-NH_2, -NH-$C(=NR^c)$-NHR^a, -NH-$C(=NR^c)$-$N(R^aR^b)$, -NR^dH-C(=NH)-NH_2, -NR^d-C(=NH)-NHR^a, -NR^d-C(=NH)-$N(R^aR^b)$, -NR^d-$C(=NR^c)$-NH_2, -NR^d-$C(=NR^c)$-NHR^a, -NR^d-$C(=NR^c)$-$N(R^aR^b)$, -$NHNH_2$, -$NHNHR^a$, -NHR^aR^b, -SO_2NH_2, -SO_2NHR^a, -$SO_2NR^aR^b$, -CH=CHR^a, -CH=CR^aR^b, -CR^c=CR^aR^b,-CR^c=CHR^a, -CR^c=CR^aR^b, -CCR^a, -SH, -SR^a, -$S(O)R^a$, -$S(O)_2R^a$, alkyl group, substituted alkyl group, non-aromatic heterocyclic group, substituted non-aromatic heterocyclic group, benzyl group, substituted benzyl group, aryl group or substituted aryl group wherein R^a-R^d are each independently an alkyl group, substituted alkyl group, benzyl, substituted benzyl, aromatic or substituted aromatic group, or,-NR^aR^d , taken together, can also form a substituted or unsubstituted non-aromatic heterocyclic group.

25. The compound of Claim 13 wherein R_1 and R_2 are both lower alkyl or a substituted lower alkyl groups.

26. The compound of Claim 25 wherein R_3 and R_4 are both a phenyl group substituted with at least one group other than an aliphatic group; R_3 and R_4 are both an alkyl group or substituted alkyl group; or R_3 and R_4 are both a hetereoaryl or substituted heteroaryl group.

27. The compound of Claim 25 wherein R_1 and R_2 are both methyl, ethyl, *n*-propyl, *n*-butyl *n*-pentyl or cyclopropyl.

28. The compound of Claim 25 wherein R_1 and R_2 are both 1-methylcyclopropyl, 2-methylcyclopropyl, cyclobutyl, cyclopentyl, or cyclohexyl.

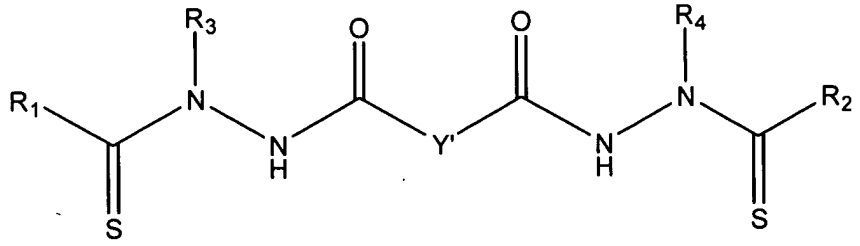
29. The compound of Claim 25 wherein R_1 and R_2 are both a C3-C8 cyclic alkyl group substituted with at least one lower alkyl group.

30. The compound of Claim 13 wherein R_1 and R_2 are both a substituted or unsubstituted C3-C8 cyclic aliphatic group.

31. The compound of Claim 30 wherein R_1 and R_2 are both a cyclopropyl group or a substituted cyclopropyl group.

32. The compound of Claim 30 wherein R_1 and R_2 are both a C3-C8 cyclic aliphatic group substituted with one or more groups selected from -OH, -Br, -Cl, -I, -F, -OR^a, -O-COR^a, -COR^a, -CN, -NO_2, -COOH, -SO_3H, -NH_2, -NHR^a, -$N(R^aR^b)$, -$COOR^a$, -CHO, -$CONH_2$, -$CONHR^a$, -$CON(R^aR^b)$, -$NHCOR^a$, -$NRCOR^a$, -$NHCONH_2$, -$NHCONR^aH$, -$NHCON(R^aR^b)$, -NR^cCONH_2, -NR^cCONR^aH, -$NR^cCON(R^aR^b)$, -C(=NH)-NH_2, -C(=NH)-NHR^a, -C(=NH)-$N(R^aR^b)$, -$C(=NR^c)$-NH_2, -$C(=NR^c)$-NHR^a, -$C(=NR^c)$-$N(R^aR^b)$, -NH-C(=NH)-NH_2, -NH-C(=NH)-NHR^a, -NH-C(=NH)-$N(R^aR^b)$, -NH-$C(=NR^c)$-NH_2, -NH-$C(=NR^c)$-NHR^a, -NH-$C(=NR^c)$-$N(R^aR^b)$, -NR^dH-C(=NH)-NH_2, -NR^d-C(=NH)-NHR^a, -NR^d-C(=NH)-$N(R^aR^b)$, -NR^d-$C(=NR^c)$-NH_2, -NR^d-$C(=NR^c)$-NHR^a, -NR^d-$C(=NR^c)$-$N(R^aR^b)$, -$NHNH_2$, -$NHNHR^a$, -NHR^aR^b, -SO_2NH_2, -SO_2NHR^a, -$SO_2NR^aR^b$, -CH=CHR^a, -CH=CR^aR^b, -CR^c=CR^aR^b, -CR^c=CHR^a, -CR^c=CR^aR^b, -CCR^a, -SH, -SR^a, -S(O)R^a, -$S(O)_2R^a$, alkyl group, susbstituted alkyl group, non-aromatic heterocyclic group, substituted non-aromatic heterocyclic group, benzyl group, substituted benzyl group, aryl group or substituted aryl group wherein R^a-R^d are each independently an alkyl group, substituted alkyl group, benzyl, substituted benzyl, aromatic or substituted aromatic group, or,-NR^aR^d, taken together, can also form a substituted or unsubstituted non-aromatic heterocyclic group.

33. The compound of Claim 5 wherein the compound is represented by the following structural formula:



;

wherein Y' is a covalent bond or -CR_7R_8-.

34. The compound of Claim 33 wherein R_7 and R_8 are different.

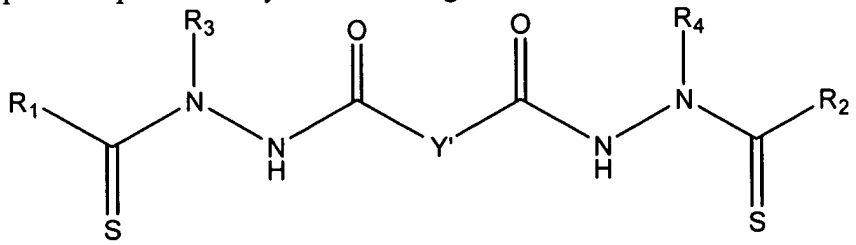
35. The compound of Claim 33 where R_1 and R_2 are the same; and R_3 and R_4 are the same.

36. The compound of Claim 35 wherein R_1 and R_2 are both a lower alkyl group or a substituted lower alkyl group and R_3 and R_4 are both an methyl, ethyl, phenyl or thienyl.

37. The compound of Claim 36 wherein R_7 is –H and R_8 is lower alkyl, phenyl, thienyl or benzyl.

38. The compound of Claim 36 wherein R_1 and R_2 are both a C3-C8 cyclic aliphatic group substituted with one or more groups selected from -OH, -Br, -Cl, -I, -F, -OR^a, -O-COR^a, -COR^a, -CN, -NO_2, -COOH, -SO_3H, -NH_2, -NHR^a, -$N(R^aR^b)$, -$COOR^a$, -CHO, -$CONH_2$, -$CONHR^a$, -$CON(R^aR^b)$, -$NHCOR^a$, -$NRCOR^a$, -$NHCONH_2$, -$NHCONR^aH$, -$NHCON(R^aR^b)$, -NR^cCONH_2, -NR^cCONR^aH, -$NR^cCON(R^aR^b)$, -C(=NH)-NH_2, -C(=NH)-NHR^a, -C(=NH)-$N(R^aR^b)$, -C(=NR^c)-NH_2, -C(=NR^c)-NHR^a, -C(=NR^c)-$N(R^aR^b)$, -NH-C(=NH)-NH_2, -NH-C(=NH)-NHR^a, -NH-C(=NH)-$N(R^aR^b)$, -NH-C(=NR^c)-NH_2, -NH-C(=NR^c)-NHR^a, -NH-C(=NR^c)-$N(R^aR^b)$, -NR^dH-C(=NH)-NH_2, -NR^d-C(=NH)-NHR^a, -NR^d-C(=NH)-$N(R^aR^b)$, -NR^d-C(=NR^c)-NH_2, -NR^d-C(=NR^c)-NHR^a, -NR^d-C(=NR^c)-$N(R^aR^b)$, -$NHNH_2$, -$NHNHR^a$, -NHR^aR^b, -SO_2NH_2, -SO_2NHR^a, -$SO_2NR^aR^b$, -CH=CHR^a, -CH=CR^aR^b, -CR^c=CR^aR^b,-CR^c=CHR^a, -CR^c=CR^aR^b, -CCR^a, -SH, -SR^a, -S(O)R^a, -$S(O)_2R^a$, alkyl group, substituted alkyl group, non-aromatic heterocyclic group, substituted non-aromatic heterocyclic group, benzyl group, substituted benzyl group, aryl group or substituted aryl group wherein R^a-R^d are each independently an alkyl group, substituted alkyl group, benzyl, substituted benzyl, aromatic or substituted aromatic group, or,-NR^aR^d , taken together, can also form a substituted or unsubstituted non-aromatic heterocyclic group.

39. A compound represented by the following structural formula:



;

or a physiologically acceptable salt thereof, wherein:

Y' is a covalent bond or -CR_7R_8-;

R_1 and R_2 are both a substituted or unsubstituted aliphatic group;

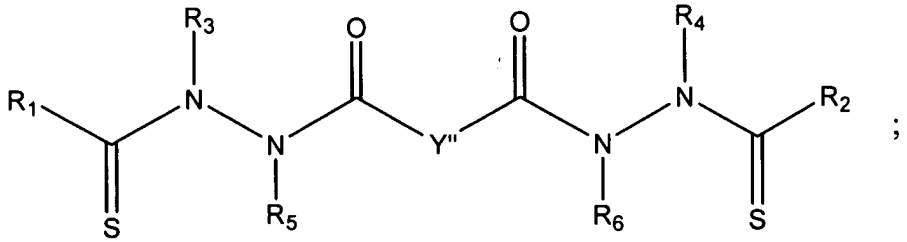
R_3 and R_4 are both -H, methyl or ethyl; and

R_7 is -H and R_8 is -H or methyl.

40. The compound of Claim 39 wherein R_1 and R_2 are both C3-C8 cyclic aliphatic group substituted with one or more groups selected from -OH, -Br, -Cl, -I, -F, -OR^a, -O-COR^a, -COR^a, -CN, -NO_2, -COOH, -SO_3H, -NH_2, -NHR^a, -$N(R^aR^b)$, -$COOR^a$, -CHO, -$CONH_2$, -$CONHR^a$, -$CON(R^aR^b)$, -$NHCOR^a$, -$NRCOR^a$, -$NHCONH_2$, -$NHCONR^aH$, -$NHCON(R^aR^b)$, -NR^cCONH_2, -NR^cCONR^aH, -$NR^cCON(R^aR^b)$, -C(=NH)-NH_2, -C(=NH)-NHR^a, -C(=NH)-$N(R^aR^b)$, -$C(=NR^c)$-NH_2, -$C(=NR^c)$-NHR^a, -$C(=NR^c)$-$N(R^aR^b)$, -NH-C(=NH)-NH_2, -NH-C(=NH)-NHR^a, -NH-C(=NH)-$N(R^aR^b)$, -NH-$C(=NR^c)$-NH_2, -NH-$C(=NR^c)$-NHR^a, -NH-$C(=NR^c)$-$N(R^aR^b)$, -NR^dH-C(=NH)-NH_2, -NR^d-C(=NH)-NHR^a, -NR^d-C(=NH)-$N(R^aR^b)$, -NR^d-$C(=NR^c)$-NH_2, -NR^d-$C(=NR^c)$-NHR^a, -NR^d-$C(=NR^c)$-$N(R^aR^b)$, -$NHNH_2$, -$NHNHR^a$, -NHR^aR^b, -SO_2NH_2, -SO_2NHR^a, -$SO_2NR^aR^b$, -CH=CHR^a, -CH=CR^aR^b, -CR^c=CR^aR^b,-CR^c=CHR^a, -CR^c=CR^aR^b, -CCR^a, -SH, -SR^a, -$S(O)R^a$, -$S(O)_2R^a$, alkyl group, substituted alkyl group, non-aromatic heterocyclic group, substituted non-aromatic heterocyclic group, benzyl group, substituted benzyl group, aryl group or substituted aryl group wherein R^a-R^d are each independently an alkyl group, substituted alkyl group, benzyl, substituted benzyl, aromatic or substituted aromatic group, or,-NR^aR^d , taken together, can also form a substituted or unsubstituted non-aromatic heterocyclic group.

41. The compound of Claim 6 wherein R_5 and R_6 are the same.

42. The compound of Claim 41 wherein the compound is represented by the following structural formula:



;

wherein Y" is a covalent bond or $-CH_2$.

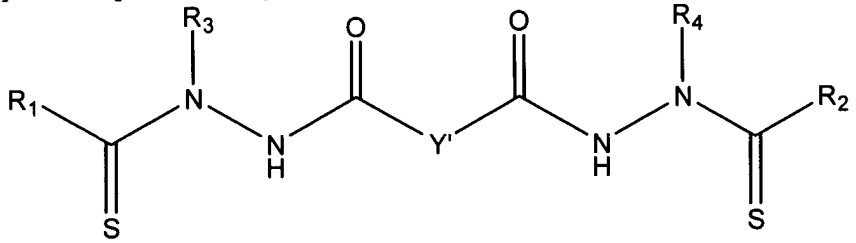
43. The compound of Claim 42 wherein R_5 and R_6 are both a lower alkyl group or a phenyl group.

44. The compound of Claim 43 wherein R_5 and R_6 are both a methyl group.

45. The compound of Claim 43 wherein R_1 and R_2 are both a lower alkyl group or substituted lower alkyl group; R_3 and R_4 are both a lower alkyl group or substituted lower alkyl group; and R_5 and R_6 are both a lower alkyl group.

46. The compound of Claim 43 wherein R_1 and R_2 are both a lower alkyl group or substituted lower alkyl group; R_3 and R_4 are both a phenyl or substituted phenyl; and R_5 and R_6 are both a lower alkyl group.

47. A compound represented by the following structural formula:



;

wherein Y' is a covalent bond or $-CR_7R_8-$.

or a physiologically acceptable salt thereof, wherein

a) R_1 and R_2 are both cyclopropyl; R_3 and R_4 are both methyl; R_7 and R_8 are both -H;

b) R_1 and R_2 are both cyclopropyl; R_3 and R_4 are both ethyl; R_7 and R_8 are both -H;

c) R_1 and R_2 are both cyclopropyl; R_3 and R_4 are both methyl; R_7 is methyl; R_8 is -H;

d) R_1 and R_2 are both 1-methylcyclopropyl; R_3 and R_4 are both methyl; Y' is bond;

e) R_1 and R_2 are both 1-methylcyclopropyl; R_3 and R_4 are both methyl; R_7 and R_8 are both -H;

f) R_1 and R_2 are both 1-methylcyclopropyl; R_3 and R_4 are both methyl; R_7 is methyl and R_8 is -H;

g) R_1 and R_2 are both 1-methylcyclopropyl; R_3 and R_4 are both methyl; R_7 is ethyl and R_8 is -H;

h) R_1 and R_2 are both 1-methylcyclopropyl; R_3 and R_4 are both methyl; R_7 is *n*-propyl and R_8 is -H;

i) R_1 and R_2 are both 1-methylcyclopropyl; R_3 and R_4 are both methyl; R_7 and R_8 are both methyl;

j) R_1 and R_2 are both 1-methylcyclopropyl; R_3 and R_4 are both ethyl; R_7 and R_8 are both -H;

k) R_1 and R_2 are both 1-methylcyclopropyl; R_3 is methyl, and R_4 is ethyl; R_7 and R_8 are both -H;

l) R_1 and R_2 are both 2-methylcyclopropyl; R_3 and R_4 are both methyl; R_7 and R_8 are both -H;

m) R_1 and R_2 are both 2-phenylcyclopropyl; R_3 and R_4 are both methyl; R_7 and R_8 are both -H;

n) R_1 and R_2 are both 1-phenylcyclopropyl; R_3 and R_4 are both methyl; R_7 and R_8 are both -H;

o) R_1 and R_2 are both cyclobutyl; R_3 and R_4 are both methyl; R_7 and R_8 are both -H;

p) R_1 and R_2 are both cyclopentyl; R_3 and R_4 are both methyl; R_7 and R_8 are both -H;

q) R_1 and R_2 are both cyclohexyl; R_3 and R_4 are both methyl; R_7 and R_8 are both -H;

r) R_1 and R_2 are both cyclohexyl; R_3 and R_4 are both phenyl; R_7 and R_8 are both -H;

s) R_1 and R_2 are both methyl; R_3 and R_4 are both methyl; R_7 and R_8 are both -H;

t) R_1 and R_2 are both methyl; R_3 and R_4 are both *t*-butyl; R_7 and R_8 are both -H;

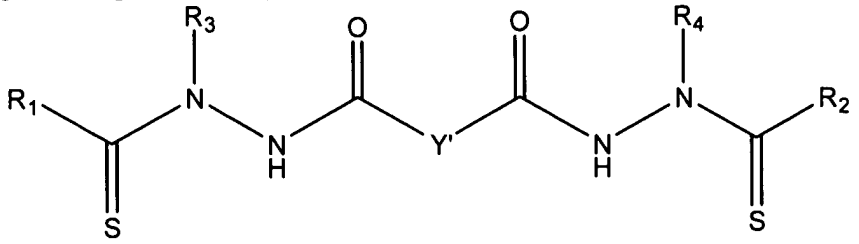
u) R_1 and R_2 are both methyl; R_3 and R_4 are both phenyl; R_7 and R_8 are both -H;

v) R_1 and R_2 are both *t*-butyl; R_3 and R_4 are both methyl; R_7 and R_8 are both -H;

w) R_1 and R_2 are ethyl; R_3 and R_4 are both methyl; R_7 and R_8 are both -H; or

x) R_1 and R_2 are both *n*-propyl; R_3 and R_4 are both methyl; R_7 and R_8 are both -H.

48. A compound represented by the following structural formula:



;

wherein Y' is a covalent bond or $-CR_7R_8-$.

or a physiologically acceptable salt thereof, wherein:

a) R_1 and R_2 are both cyclopropyl; R_3 and R_4 are both methyl; R_7 and R_8 are both -H;

b) R_1 and R_2 are both 1-methylcyclopropyl; R_3 and R_4 are both methyl; Y' is bond;

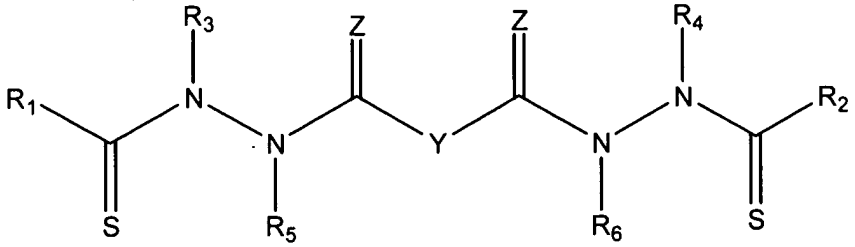
c) R_1 and R_2 are both 1-methylcyclopropyl; R_3 and R_4 are both ethyl; R_7 and R_8 are both -H;

d) R_1 and R_2 are both 1-methylcyclopropyl; R_3 and R_4 are both methyl; R_7 is methyl; R_8 is -H;

e) R_1 and R_2 are both 1-methylcyclopropyl; R_3 and R_4 are both ethyl; R_7 and R_8 are both -H; or

f) R_1 and R_2 are both methyl; R_3 and R_4 are both methyl; R_7 and R_8 are both –H.

49. A pharmaceutical composition comprising a pharmaceutically acceptable carrier or diluent and a compound represented by the following structural formula:



;

or a pharmaceutically acceptable salt thereof, wherein:

Y is a covalent bond, a phenylene group or a substituted or unsubstituted straight chained hydrocarbyl group, or, Y, taken together with both >C=Z groups to which it is bonded, is a substituted or unsubstituted aromatic group;

R_1 is an aliphatic group, a substituted aliphatic group, a non-aromatic heterocyclic group, or a substituted non-aromatic heterocyclic group;

R_2-R_4 are independently -H, an aliphatic group, a substituted aliphatic group, a non-aromatic heterocylic group, a substituted non-aromatic heterocyclic group, an aryl group or a substituted aryl group, or R_1 and R_3 taken together with the carbon and nitrogen atoms to which they are bonded, and/or R_2 and R_4 taken together with the carbon and nitrogen atoms to which they are bonded, form a non-aromatic heterocyclic ring optionally fused to an aromatic ring;

R_5-R_6 are independently -H, an aliphatic group, a substituted aliphatic group, an aryl group or a substituted aryl group; and

Z is =O or =S.

50. The pharmaceutical composition of Claim 49 wherein:

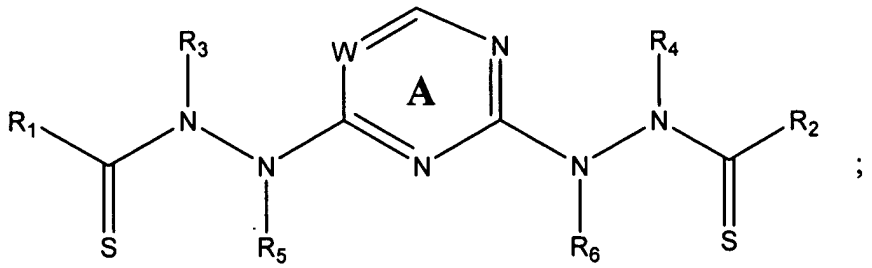
Y is a covalent bond or a substituted or unsubstituted straight chained hydrocarbyl group, or, Y, taken together with both >C=Z groups to which it is bonded, is a substituted or unsubstituted aromatic group;

R_1 is an aliphatic group or a substituted aliphatic group;

R_2-R_4 are independently -H, an aliphatic group, a substituted aliphatic group, an aryl group or a substituted aryl group, or R_1 and R_3 taken together with the carbon and nitrogen atoms to which they are bonded, and/or R_2 and R_4 taken together with the carbon and nitrogen atoms to which they are bonded, form a non-aromatic heterocyclic ring optionally fused to an aromatic ring.

51. The pharmaceutical composition of Claim 50 wherein Y, taken together with both >C=Z groups to which it is bonded, is a substituted or unsubstituted aromatic group.

52. The pharmaceutical composition of Claim 51 wherein the compound is represented by the following structural formula:

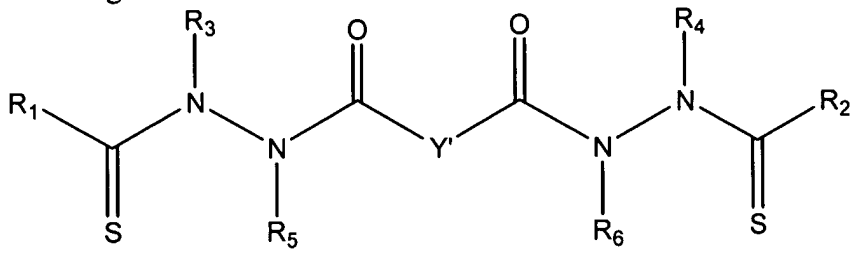


;

wherein Ring **A** is substituted or unsubstituted and W is -CH- or -N-.

53. The pharmaceutical composition of Claim 50 wherein Y is a covalent bond or a substituted or unsubstituted hydrocarbyl group.

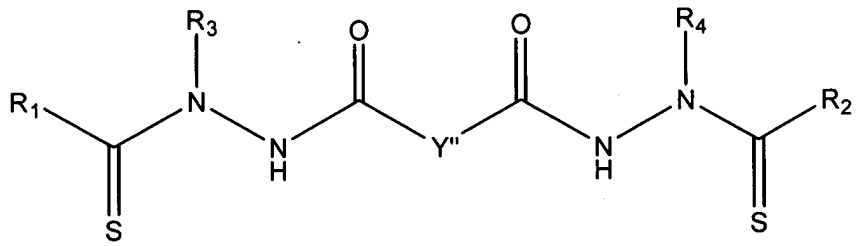
54. The pharmaceutical composition of Claim 50 wherein the compound is represented by the following structural formula:



;

wherein Y' is a covalent bond or $-CR_7R_8-$ and R_7 and R_8 are each independently -H, an aliphatic or substituted aliphatic group, or R_7 is -H and R_8 is a substituted or unsubstituted aryl group, or, R_7 and R_8, taken together, are a C2-C6 substituted or unsubstituted alkylene group.

55. The pharmaceutical composition of Claim 50 wherein the compound is represented by the following structural formula:

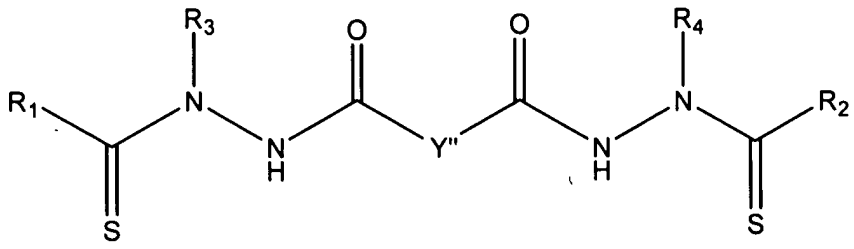


;

wherein Y" is a covalent bond or $-CH_2-$.

56. The pharmaceutical composition of Claim 55 wherein R_1 and R_2 are different.

57. The pharmaceutical composition of Claim 56 wherein the compound is represented by the following structural formula:



;

wherein Y" is a a covalent bond or $-CH_2-$ and R_1 is a substituted or unsubstituted aliphatic group and R_2 is a substituted or unsubstituted aryl group.

58. The pharmaceutical composition of Claim 55 wherein R_1 and R_2 are the same and R_3 and R_4 are the same.

59. The pharmaceutical composition of Claim 58 wherein R_3 and R_4 are both a lower alkyl group or a substituted lower alkyl group.

60. The pharmaceutical composition of Claim 58 wherein R_3 and R_4 are both methyl or ethyl.

61. The pharmaceutical composition of Claim 60 wherein R_1 and R_2 are both an aliphatic group or substituted aliphatic group.

62. The pharmaceutical composition of Claim 58 wherein R_1 and R_2 are a C3-C8 cyclic aliphatic group or substituted C3-C8 cyclic aliphatic group group.

63. The pharmaceutical composition of Claim 61 wherein R_1 and R_2 are both a C3-C8 cyclic aliphatic substituted with one or more groups selected from -OH, -Br, -Cl, -I, -F, $-OR^a$, $-O-COR^a$, $-COR^a$, -CN, $-NO_2$, -COOH, $-SO_3H$, $-NH_2$, $-NHR^a$, $-N(R^aR^b)$, $-COOR^a$, -CHO, $-CONH_2$, $-CONHR^a$, $-CON(R^aR^b)$, $-NHCOR^a$, $-NRCOR^a$, $-NHCONH_2$, $-NHCONR^aH$, $-NHCON(R^aR^b)$, $-NR^cCONH_2$, $-NR^cCONR^aH$, $-NR^cCON(R^aR^b)$, $-C(=NH)-NH_2$, $-C(=NH)-NHR^a$, $-C(=NH)-N(R^aR^b)$, $-C(=NR^c)-NH_2$, $-C(=NR^c)-NHR^a$, $-C(=NR^c)-N(R^aR^b)$, $-NH-C(=NH)-NH_2$, $-NH-C(=NH)-NHR^a$,

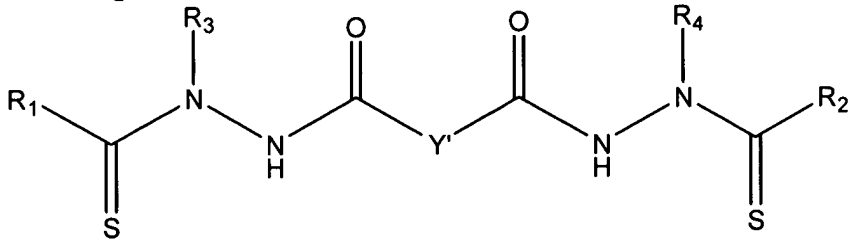
-NH-C(=NH)-N(R^aR^b), -NH-C(=NR^c)-NH_2, -NH-C(=NR^c)-NHR^a, -NH-C(=NR^c)-N(R^aR^b), -NR^dH-C(=NH)-NH_2, -NR^d-C(=NH)-NHR^a, -NR^d-C(=NH)-N(R^aR^b), -NR^d-C(=NR^c)-NH_2, -NR^d-C(=NR^c)-NHR^a, -NR^d-C(=NR^c)-N(R^aR^b), -$NHNH_2$, -$NHNHR^a$, -NHR^aR^b, -SO_2NH_2, -SO_2NHR^a, -$SO_2NR^aR^b$, -CH=CHR^a, -CH=CR^aR^b, -CR^c=CR^aR^b,-CR^c=CHR^a, -CR^c=CR^aR^b, -CCR^a, -SH, -SR^a, -S(O)R^a, -$S(O)_2R^a$, alkyl group, substituted alkyl group, non-aromatic heterocyclic group, substituted non-aromatic heterocyclic group, benzyl group, substituted benzyl group, aryl group or substituted aryl group wherein R^a-R^d are independently an alkyl group, substituted alkyl group, benzyl, substituted benzyl, aromatic or substituted aromatic group, or,-NR^aR^d , taken together, can also form a substituted or unsubstituted non-aromatic heterocyclic group.

64. The pharmaceutical composition of Claim 58 wherein R_3 and R_4 are both a phenyl group or a substituted phenyl group.

65. The pharmaceutical composition of Claim 64 wherein R_1 and R_2 are both a C3-C8 cyclic aliphatic group or substituted C3-C8 cyclic aliphatic group.

66. The pharmaceutical composition of Claim 64 wherein R_1 and R_2 are both a cyclopropyl group or substituted cyclopropyl group.

67. The pharmaceutical composition of Claim 53 wherein the compound is represented by the following structural formula:



;

wherein Y' is a covalent bond or -CR_7R_8-.

68. The pharmaceutical composition of Claim 67 wherein R_7 and R_8 are different

69. The pharmaceutical composition of Claim 67 where R_1 and R_2 are the same; R_3 and R_4 are the same; and R_7 and R_8 are the same.

70. The pharmaceutical composition of Claim 69 wherein R_1 and R_2 are both an aliphatic group or substituted aliphatic group and R_3 and R_4 are both a lower alkyl group or a substituted lower alkyl group

71. The pharmaceutical composition of Claim 69 wherein R_1 and R_2 are both a lower alkyl group or a substituted lower alkyl group and R_3 and R_4 are both an aryl group or a substituted aryl group

72. The pharmaceutical composition of Claim 69 wherein R_1 and R_2 are both a C3-C8 cyclic aliphatic group or substituted C3-C8 cyclic aliphatic group and R_3 and R_4 are methyl, ethyl, phenyl, or thienyl.

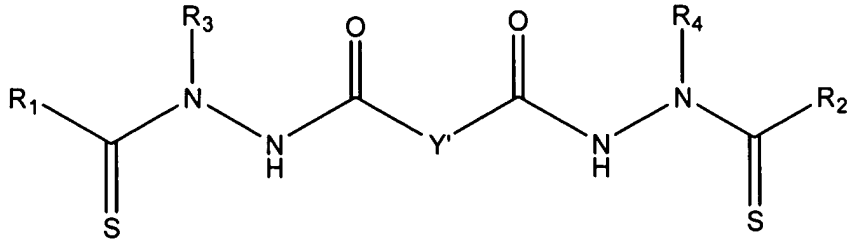
73. The pharmaceutical composition of Claim 72 wherein R_7 and R_8 are both methyl or wherein R_7 and R_8, taken together, are propylene or butylene.

74. The pharmaceutical composition of Claim 72 wherein R_7 is -H and R_8 is lower alkyl, thienyl, phenyl or benzyl.

75. The pharmaceutical composition of Claim 72 wherein R_1 and R_2 are both a C3-C8 cyclic aliphatic group substituted with one or more groups selected from -OH, -Br, -Cl, -I, -F, $-OR^a$, $-O-COR^a$, $-COR^a$, -CN, $-NO_2$, -COOH, $-SO_3H$, $-NH_2$, $-NHR^a$, $-N(R^aR^b)$, $-COOR^a$, -CHO, $-CONH_2$, $-CONHR^a$, $-CON(R^aR^b)$, $-NHCOR^a$, $-NRCOR^a$, $-NHCONH_2$, $-NHCONR^aH$, $-NHCON(R^aR^b)$, $-NR^cCONH_2$, $-NR^cCONR^aH$, $-NR^cCON(R^aR^b)$, $-C(=NH)-NH_2$, $-C(=NH)-NHR^a$, $-C(=NH)-N(R^aR^b)$, $-C(=NR^c)-NH_2$, $-C(=NR^c)-NHR^a$, $-C(=NR^c)-N(R^aR^b)$, $-NH-C(=NH)-NH_2$, $-NH-C(=NH)-NHR^a$, $-NH-C(=NH)-N(R^aR^b)$, $-NH-C(=NR^c)-NH_2$, $-NH-C(=NR^c)-NHR^a$, $-NH-C(=NR^c)-N(R^aR^b)$, $-NR^dH-C(=NH)-NH_2$, $-NR^d-C(=NH)-NHR^a$, $-NR^d-C(=NH)-N(R^aR^b)$, $-NR^d-C(=NR^c)-NH_2$, $-NR^d-C(=NR^c)-NHR^a$, $-NR^d-C(=NR^c)-N(R^aR^b)$, $-NHNH_2$, $-NHNHR^a$, $-NHR^aR^b$, $-SO_2NH_2$, $-SO_2NHR^a$, $-SO_2NR^aR^b$, $-CH=CHR^a$, $-CH=CR^aR^b$, $-CR^c=CR^aR^b$,$-CR^c=CHR^a$, $-CR^c=CR^aR^b$, $-CCR^a$, -SH, $-SR^a$, $-S(O)R^a$, $-S(O)_2R^a$, alkyl groups, substituted alkyl group, non-aromatic heterocyclic group, substituted non-aromatic heterocyclic group, benzyl group, substituted benzyl group, aryl group or substituted aryl group wherein R^a-R^d are each independently an alkyl group, substituted alkyl group, benzyl, substituted benzyl,

aromatic or substituted aromatic group, or,-NR^aR^d , taken together, can also form a substituted or unsubstituted non-aromatic heterocyclic group.

76. A pharmaceutical composition comprising a pharmaceutically acceptable carrier or diluent and a compound represented by the following structural formula:



;

or a physiologically acceptable salt thereof, wherein:

Y' is a covalent bond or -CR_7R_8-;

R_1 and R_2 are both a substituted or unsubstituted aliphatic group;

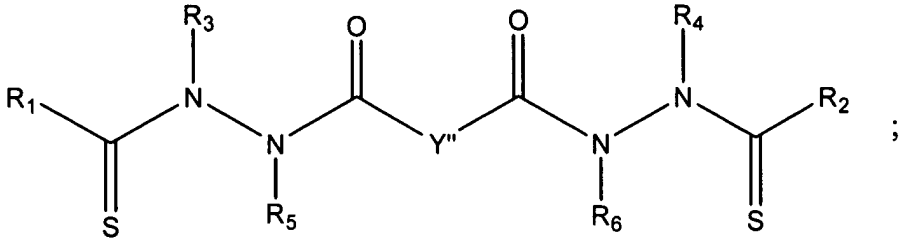
R_3 and R_4 are both -H, methyl or ethyl; and

R_7 is -H and R_8 is -H or methyl.

77. The pharmaceutical composition of Claim 76 wherein R_1 and R_2 are both a C3-C8 cyclic aliphatic group substituted with one or more groups selected from -OH, -Br, -Cl, -I, -F, -OR^a, -O-COR^a, -COR^a, -CN, -NO_2, -COOH, -SO_3H, -NH_2, -NHR^a, -$N(R^aR^b)$, -$COOR^a$, -CHO, -$CONH_2$, -$CONHR^a$, -$CON(R^aR^b)$, -$NHCOR^a$, -$NRCOR^a$, -$NHCONH_2$, -$NHCONR^aH$, -$NHCON(R^aR^b)$, -NR^cCONH_2, -NR^cCONR^aH, -$NR^cCON(R^aR^b)$, -C(=NH)-NH_2, -C(=NH)-NHR^a, -C(=NH)-$N(R^aR^b)$, -$C(=NR^c)$-NH_2, -$C(=NR^c)$-NHR^a, -$C(=NR^c)$-$N(R^aR^b)$, -NH-C(=NH)-NH_2, -NH-C(=NH)-NHR^a, -NH-C(=NH)-$N(R^aR^b)$, -NH-$C(=NR^c)$-NH_2, -NH-$C(=NR^c)$-NHR^a, -NH-$C(=NR^c)$-$N(R^aR^b)$, -NR^dH-C(=NH)-NH_2, -NR^d-C(=NH)-NHR^a, -NR^d-C(=NH)-$N(R^aR^b)$, -NR^d-$C(=NR^c)$-NH_2, -NR^d-$C(=NR^c)$-NHR^a, -NR^d-$C(=NR^c)$-$N(R^aR^b)$, -$NHNH_2$, -$NHNHR^a$, -NHR^aR^b, -SO_2NH_2, -SO_2NHR^a, -$SO_2NR^aR^b$, -CH=CHR^a, -CH=CR^aR^b, -CR^c=CR^aR^b, -CR^c=CHR^a, -CR^c=CR^aR^b, -CCR^a, -SH, -SR^a, -$S(O)R^a$, -$S(O)_2R^a$, alkyl groups, substituted alkyl group, non-aromatic heterocyclic group, substituted non-aromatic heterocyclic group, benzyl group, substituted benzyl group, aryl group or substituted aryl group wherein R^a-R^d are each independently an alkyl group, substituted alkyl group, benzyl, substituted benzyl, aromatic or substituted aromatic group, or,-NR^aR^d , taken together, can also form a substituted or unsubstituted non-aromatic heterocyclic group.

78. The pharmaceutical composition of Claim 53 wherein R_5 and R_6 are the same.

79. The pharmaceutical composition of Claim 78 wherein the compound is represented by the following structural formula:



;

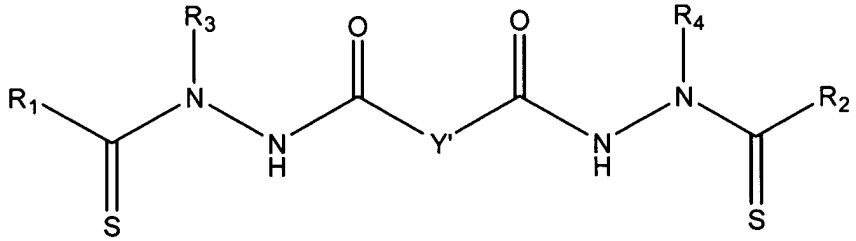
wherein Y" is a covalent bond or $-CH_2-$.

80. The pharmaceutical composition of Claim 79 wherein R_5 and R_6 are both a lower alkyl group or a phenyl group

81. The pharmaceutical composition of Claim 80 wherein R_5 and R_6 are both a methyl group.

82. The pharmaceutical composition of Claim 79 wherein R_1 and R_2 are both a C3-C8 cyclic aliphatic group or substituted C3-C8 cyclic aliphatic group; R_3 and R_4 are both a lower alkyl group; and R_5 and R_6 are both a lower alkyl group.

83. A pharmaceutical composition represented by the following structural formula:



;

wherein Y' is a covalent bond or $-CR_7R_8-$.

or a physiologically acceptable salt thereof, wherein:

a. R_1 and R_2 are both cyclopropyl; R_3 and R_4 are both methyl; R_7 and R_8 are both -H;

b. R_1 and R_2 are both cyclopropyl; R_3 and R_4 are both ethyl; R_7 and R_8 are both -H;

c. R_1 and R_2 are both cyclopropyl; R_3 and R_4 are both methyl; R_7 is methyl; R_8 is -H;

d. R_1 and R_2 are both 1-methylcyclopropyl; R_3 and R_4 are both methyl; Y' is bond;

e. R_1 and R_2 are both 1-methylcyclopropyl; R_3 and R_4 are both methyl; R_7 and R_8 are both -H;

f. R_1 and R_2 are both 1-methylcyclopropyl; R_3 and R_4 are both methyl; R_7 is methyl and R_8 is -H;

g. R_1 and R_2 are both 1-methylcyclopropyl; R_3 and R_4 are both methyl; R_7 is ethyl and R_8 is -H;

h. R_1 and R_2 are both 1-methylcyclopropyl; R_3 and R_4 are both methyl; R_7 is *n*-propyl and R_8 is -H;

i. R_1 and R_2 are both 1-methylcyclopropyl; R_3 and R_4 are both methyl; R_7 and R_8 are both methyl;

j. R_1 and R_2 are both 1-methylcyclopropyl; R_3 and R_4 are both ethyl; R_7 and R_8 are both -H;

k. R_1 and R_2 are both 1-methylcyclopropyl; R_3 is methyl, and R_4 is ethyl; R_7 and R_8 are both -H;

l. R_1 and R_2 are both 2-methylcyclopropyl; R_3 and R_4 are both methyl; R_7 and R_8 are both -H;

m. R_1 and R_2 are both 2-phenylcyclopropyl; R_3 and R_4 are both methyl; R_7 and R_8 are both -H;

n. R_1 and R_2 are both 1-phenylcyclopropyl; R_3 and R_4 are both methyl; R_7 and R_8 are both -H;

o. R_1 and R_2 are both cyclobutyl; R_3 and R_4 are both methyl; R_7 and R_8 are both -H;

p. R_1 and R_2 are both cyclopentyl; R_3 and R_4 are both methyl; R_7 and R_8 are both -H;

q. R_1 and R_2 are both cyclohexyl; R_3 and R_4 are both methyl; R_7 and R_8 are both -H;

r. R_1 and R_2 are both cyclohexyl; R_3 and R_4 are both phenyl; R_7 and R_8 are both -H;

s. R_1 and R_2 are both methyl; R_3 and R_4 are both methyl; R_7 and R_8 are both -H;

t. R_1 and R_2 are both methyl; R_3 and R_4 are both t-butyl; R_7 and R_8 are both -H;

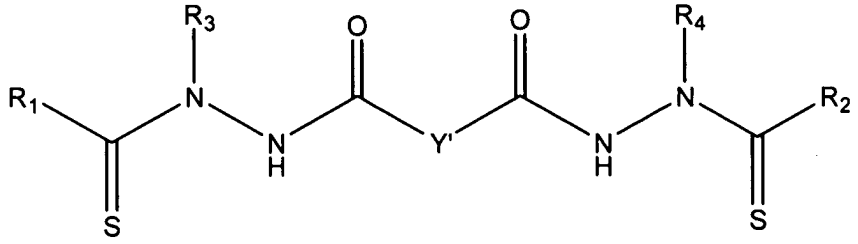
u. R_1 and R_2 are both methyl; R_3 and R_4 are both phenyl; R_7 and R_8 are both -H;

v. R_1 and R_2 are both t-butyl; R_3 and R_4 are both methyl; R_7 and R_8 are both -H;

w. R_1 and R_2 are ethyl; R_3 and R_4 are both methyl; R_7 and R_8 are both -H;

x. R_1 and R_2 are both n-propyl; R_3 and R_4 are both methyl; R_7 and R_8 are both -H;

84. A pharmaceutical composition represented by the following structural formula:



;

wherein Y' is a covalent bond or $-CR_7R_8-$,

or a physiologically acceptable salt thereof, wherein:

a) R_1 and R_2 are both cyclopropyl; R_3 and R_4 are both methyl; R_7 and R_8 are both -H;

b) R_1 and R_2 are both 1-methylcyclopropyl; R_3 and R_4 are both methyl; Y' is bond;

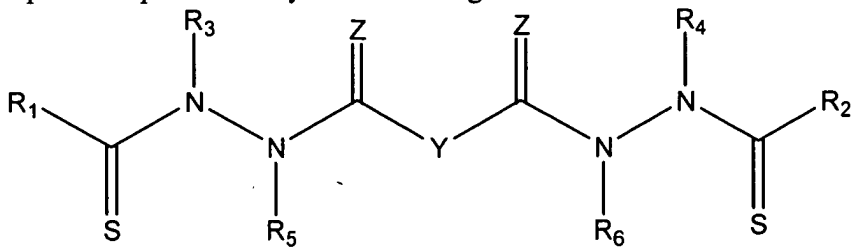
c) R_1 and R_2 are both 1-methylcyclopropyl; R_3 and R_4 are both ethyl; R_7 and R_8 are both -H;

d) R_1 and R_2 are both 1-methylcyclopropyl; R_3 and R_4 are both methyl; R_7 is methyl; R_8 is -H;

e) R_1 and R_2 are both 1-methylcyclopropyl; R_3 and R_4 are both ethyl; R_7 and R_8 are both -H;

f) R_1 and R_2 are both methyl; R_3 and R_4 are both methyl; R_7 and R_8 are both –H.

85. A method of treating a subject with cancer, said method comprising administering to the subject an effective amount of taxol or a taxol analog and an effective amount of a compound represented by the following structural formula:



;

or a pharmaceutically acceptable salt thereof, wherein:

Y is a covalent bond, a phenylene group or a substituted or unsubstituted hydrocarbyl group, or, Y, taken together with both >C=Z groups to which it is bonded, is a substituted or unsubstituted aromatic group;

R_1 is an aliphatic group, a substituted aliphatic group, a non-aromatic heterocyclic, or a substituted non-aromatic heterocyclic;

R_2-R_4 are independently -H, an aliphatic group, a substituted aliphatic group, a non-aromatic heterocyclic, a substituted non-aromatic heterocyclic, an aryl group or a substituted aryl group, or R_1 and R_3 taken together with the carbon and nitrogen atoms to which they are bonded, and/or R_2 and R_4 taken together with the carbon and nitrogen atoms to which they are bonded, form a non-aromatic heterocyclic ring optionally fused to an aromatic ring;

R_5-R_6 are independently -H, an aliphatic group, a substituted aliphatic group, an aryl group or a substituted aryl group;

and Z is =O or =S.

86. The method of Claim 85 wherein:

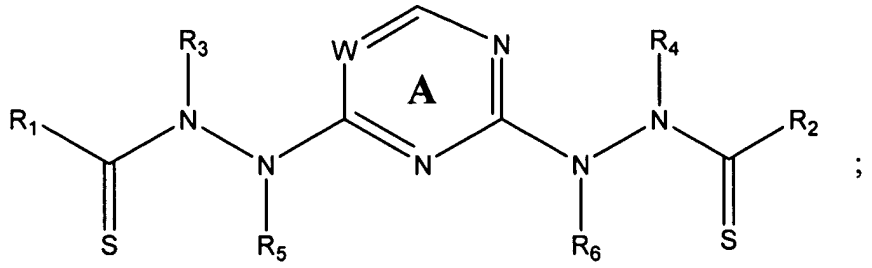
Y is a covalent bond or a substituted or unsubstituted hydrocarbyl group, or, Y, taken together with both >C=Z groups to which it is bonded, is a substituted or unsubstituted aromatic group;

R_1 is an aliphatic group, a substituted aliphatic group;

R_2-R_4 are independently -H, an aliphatic group, a substituted aliphatic group, an aryl group or a substituted aryl group, or R_1 and R_3 taken together with the carbon and nitrogen atoms to which they are bonded, and/or R_2 and R_4 taken together with the carbon and nitrogen atoms to which they are bonded, form a non-aromatic heterocyclic ring optionally fused to an aromatic ring

87. The method of Claim 86 wherein Y, taken together with both >C=Z groups to which it is bonded, is a substituted or unsubstituted aromatic group

88. The method of Claim 87 wherein the compound is represented by the following structural formula:

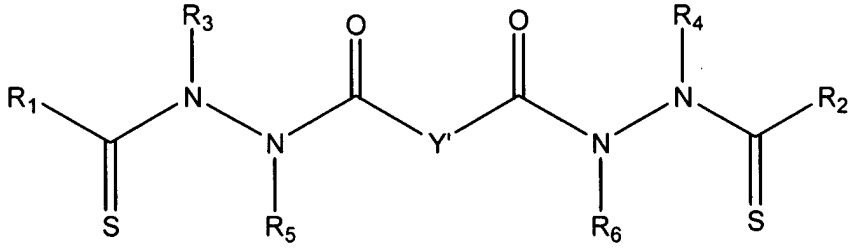


;

wherein Ring **A** is substituted or unsubstituted and W is -CH- or -N-.

89. The method of Claim 86 wherein Y is a covalent bond or a substituted or unsubstituted straight chained hydrocarbyl group.

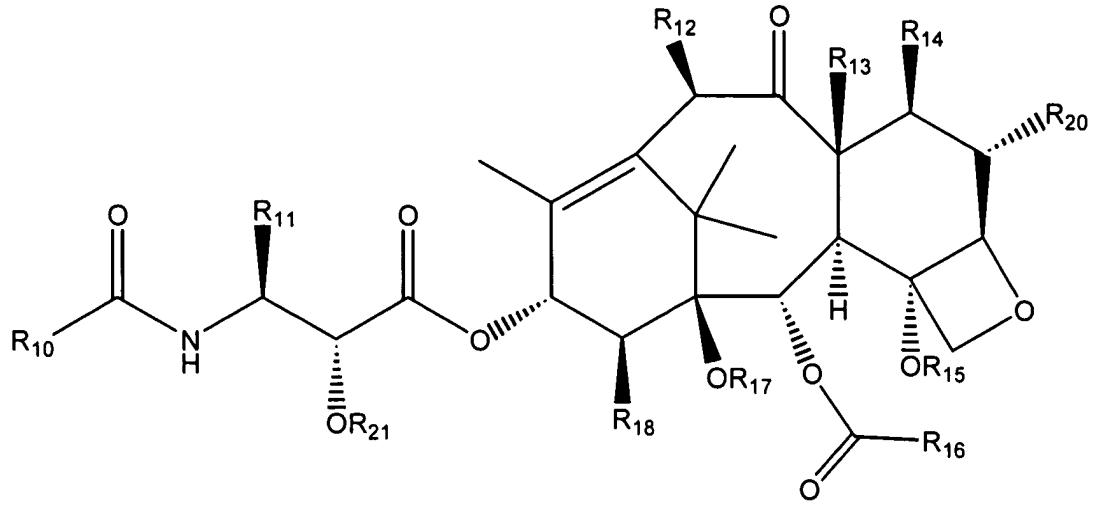
90. The method of Claim 86 wherein the compound is represented by the following structural formula:



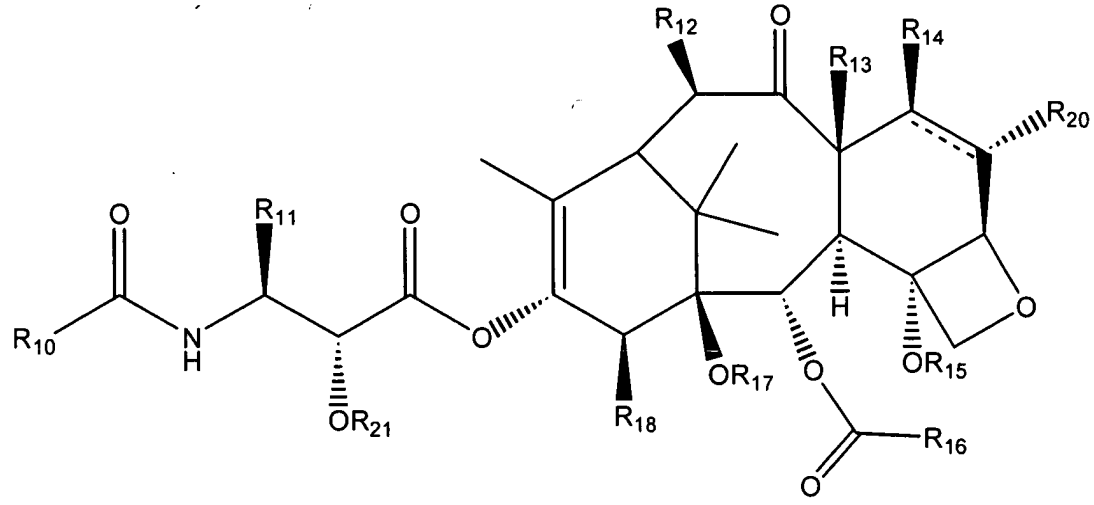
;

wherein Y' is a covalent bond or $-CR_7R_8-$ and R_7 and R_8 are each independently -H, an aliphatic or substituted aliphatic group, or R_7 is -H and R_8 is a substituted or unsubstituted aryl group, or, R_7 and R_8, taken together, are a C2-C6 substituted or unsubstituted alkylene group.

91. The method of Claim 90 wherein the taxol analog is represented by a structural formula selected from:



or



wherein:

R_{10} is a lower alkyl group, a substituted lower alkyl group, a phenyl group, a substituted phenyl group, $-SR_{19}$, $-NHR_{19}$ or $-OR_{19}$;

R_{11} is a lower alkyl group, a substituted lower alkyl group, an aryl group or a substituted aryl group;

R_{12} is -H, -OH, lower alkyl, substituted lower alkyl, lower alkoxy, substituted lower alkoxy, -O-C(O)-(lower alkyl), -O-C(O)-(substituted lower alkyl), $-O-CH_2-O-$(lower alkyl) $-S-CH_2-O-$(lower alkyl);

R_{13} is -H, $-CH_3$, or, taken together with R_{14}, $-CH_2-$;

R_{14} is -H, -OH, lower alkoxy, -O-C(O)-(lower alkyl), substituted lower alkoxy, -O-C(O)-(substituted lower alkyl), -O-CH_2-O-P(O)$(OH)_2$, -O-CH_2-O-(lower alkyl), -O-CH_2-S-(lower alkyl) or, taken together with R_{20}, a double bond;

R_{15} -H, lower acyl, lower alkyl, substituted lower alkyl, alkoxymethyl, alkthiomethyl, -OC(O)-O(lower alkyl), -OC(O)-O(substituted lower alkyl), -OC(O)-NH(lower alkyl) or -OC(O)-NH(substituted lower alkyl);

R_{16} is phenyl or substituted phenyl;

R_{17} is -H, lower acyl, substituted lower acyl, lower alkyl, substituted, lower alkyl, (lower alkoxy)methyl or (lower alkyl)thiomethyl;

R_{18} -H, -CH_3 or, taken together with R_{17} and the carbon atoms to which R_{17} and R_{18} are bonded, a five or six membered a non-aromatic heterocyclic ring;

R_{19} is a lower alkyl group, a substituted lower alkyl group, a phenyl group, a substituted phenyl group;

R_{20} is -H or a halogen; and

R_{21} is -H, lower alkyl, substituted lower alkyl, lower acyl or substituted lower acyl.

92. The method of Claim 91 wherein:

R_{10} is phenyl, *tert*-butoxy, -S-CH_2-CH-$(CH_3)_2$, -S-CH$(CH_3)_3$, -S-$(CH_2)_3CH_3$, -O- CH$(CH_3)_3$, -NH-CH$(CH_3)_3$, -CH=C$(CH_3)_2$ or *para*-chlorophenyl;

R_{11} is phenyl, $(CH_3)_2CHCH_2$-, -2-furanyl, cyclopropyl or *para*-toluyl;

R_{12} is -H, -OH, CH_3CO- or -$(CH_2)_2$-*N*-morpholino;

R_{13} is methyl, or, R_{13} and R_{14}, taken together, are -CH_2-;

R_{14} is -H, -CH_2SCH_3 or -CH_2-O-P(O)$(OH)_2$;

R_{15} is CH_3CO-;

R_{16} is phenyl;

R_{17} -H, or, R_{17} and R_{18}, taken together, are -O-CO-O-;

R_{18} is -H;

R_{20} is -H or -F; and

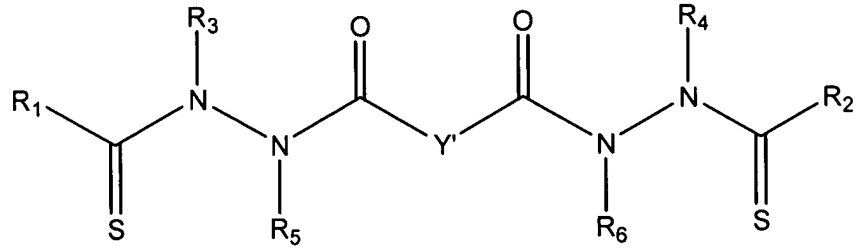
R_{21} is -H, -C(O)-CHBr-$(CH_2)_{13}$-CH_3 or -C(O)-$(CH_2)_{14}$-CH_3; -C(O)-CH_2-CH(OH)-COOH, -C(O)-CH_2-O-C(O)-CH_2CH(NH_2)-$CONH_2$, -C(O)-CH_2-O--$CH_2CH_2OCH_3$ or -C(O)-O-C(O)-CH_2CH_3.

93. The method of Claim 91 wherein the taxol analog is represented by a structure shown in any on of Figures 5-25.

94. The method of Claim 90 wherein the taxol analog is the copolymer of *N*-(2-hydroxypropyl)methacrylamide,methacryloylglycine-2-hydroxypropylamide and [2aR[2α,4β,4β,6β,9α (2R,3S),11β,12α,12α,12α]]-6,12b-diacetoxy-9-[3-benzamido-2-(methacryloyl-glycyl-L-phenylalanyl-L-leucyl.glycyloxy)-3-phenylpropionyloxy]-12-benzoyloxy-4,11-dihydroxy-4a,8,13,13-tetramethyl-2a,3,4,4a,5,6,9,10,11,12,12a,12b-dodecahydro-1H-7,11-methanocyclodeca[3,4]benz[1,2-b]oxet-5-one.

95. The method of Claim 90 wherein the subject is administered taxol or taxotere.

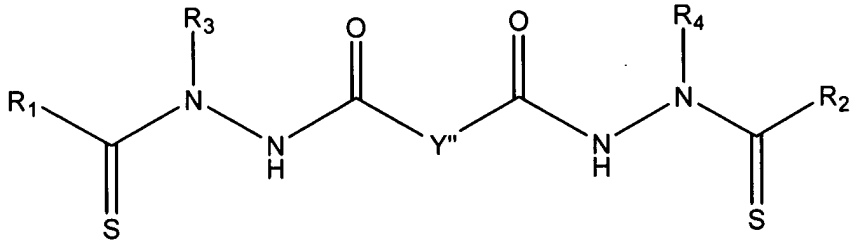
96. The method of Claim 86 wherein the compound is represented by the following structural formula:



;

wherein Y' is a covalent bond or $-CR_7R_8-$.

97. The method of Claim 86 wherein the compound is represented by the following structural formula:

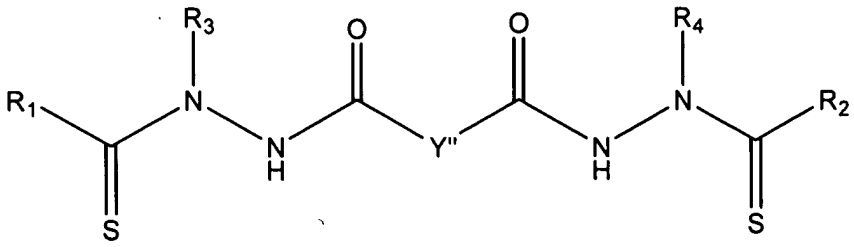


;

wherein Y" is a covalent bond or $-CH_2-$ and R_7 and R_8 are each independently -H, an aliphatic or substituted aliphatic group, or R_7 is -H and R_8 is a substituted or unsubstituted aryl group, or, R_7 and R_8, taken together, are a C2-C6 substituted or unsubstituted alkylene group.

98. The method of Claim 97 wherein R_1 and R_2 are different.

99. The method of Claim 98 wherein the compound is represented by the following structural formula:



;

wherein Y" is a a covalent bond or $-CH_2-$ and R_1 is a substituted or unsubstituted aliphatic group and R_2 is a substituted or unsubstituted aryl group.

100. The method of Claim 97 wherein R_1 and R_2 are the same and R_3 and R_4 are the same.

101. The method of Claim 100 wherein R_3 and R_4 are both a lower alkyl group or a substituted lower alkyl group.

102. The method of Claim 100 wherein R_3 and R_4 are both methyl or ethyl.

103. The method of Claim 103 wherein R_1 and R_2 are both an aliphatic or substituted aliphatic group.

104. The method of Claim 100 wherein R_1 and R_2 are both a substituted or unsubstituted C3-C8 cyclic aliphatic group.

105. The method of Claim 103 wherein R_1 and R_2 are both a C3-C8 cyclic aliphatic group substituted with one or more groups selected from -OH, -Br, -Cl, -I, -F, $-OR^a$, $-O-COR^a$, $-COR^a$, -CN, $-NO_2$, -COOH, $-SO_3H$, $-NH_2$, $-NHR^a$, $-N(R^aR^b)$, $-COOR^a$, -CHO, $-CONH_2$, $-CONHR^a$, $-CON(R^aR^b)$, $-NHCOR^a$, $-NRCOR^a$, $-NHCONH_2$, $-NHCONR^aH$, $-NHCON(R^aR^b)$, $-NR^cCONH_2$, $-NR^cCONR^aH$, $-NR^cCON(R^aR^b)$, $-C(=NH)-NH_2$, $-C(=NH)-NHR^a$, $-C(=NH)-N(R^aR^b)$, $-C(=NR^c)-NH_2$, $-C(=NR^c)-NHR^a$, $-C(=NR^c)-N(R^aR^b)$, $-NH-C(=NH)-NH_2$, $-NH-C(=NH)-NHR^a$, $-NH-C(=NH)-N(R^aR^b)$, $-NH-C(=NR^c)-NH_2$, $-NH-C(=NR^c)-NHR^a$, $-NH-C(=NR^c)-N(R^aR^b)$, $-NR^dH-C(=NH)-NH_2$, $-NR^d-C(=NH)-NHR^a$, $-NR^d-C(=NH)-N(R^aR^b)$, $-NR^d-C(=NR^c)-NH_2$, $-NR^d-$

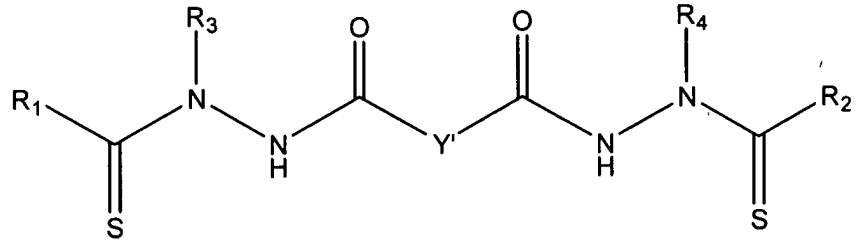
$C(=NR^c)$-NHR^a, -NR^d-$C(=NR^c)$-$N(R^aR^b)$, -$NHNH_2$, -$NHNHR^a$, -NHR^aR^b, -SO_2NH_2, -SO_2NHR^a, -$SO_2NR^aR^b$, -$CH=CHR^a$, -$CH=CR^aR^b$, -$CR^c=CR^aR^b$,-$CR^c=CHR^a$, -$CR^c=CR^aR^b$, -CCR^a, -SH, -SR^a, -$S(O)R^a$, -$S(O)_2R^a$, alkyl group, substituted alkyl group, non-aromatic heterocyclic group, substituted non-aromatic heterocyclic group, benzyl group, substituted benzyl group, aryl group or substituted aryl group wherein R^a-R^d are independently an alkyl group, substituted alkyl group, benzyl, substituted benzyl, aromatic or substituted aromatic group, or,-NR^aR^d , taken together, can also form a substituted or unsubstituted non-aromatic heterocyclic group.

106. The method of Claim 100 wherein R_3 and R_4 are both a phenyl group or a substituted phenyl group.

107. The method of Claim 106 wherein R_1 and R_2 are both a C3-C8 cyclic aliphatic or a C3-C8 substituted cyclic aliphatic group.

108. The method of Claim 106 wherein R_1 and R_2 are both a substituted aliphatic group.

109. The method of Claim 89 wherein the compound is represented by the following structural formula:



;

wherein Y' is a covalent bond or -CR_7R_8-.

110. The method of Claim 109 wherein R_7 and R_8 are different.

111. The method of Claim 109 where R_1 and R_2 are the same; R_3 and R_4 are the same; and R_7 and R_8 are the same.

112. The method of Claim 111 wherein R_1 and R_2 are both an aliphatic or substituted aliphatic group and R_3 and R_4 are both a lower alkyl group or a substituted lower alkyl group.

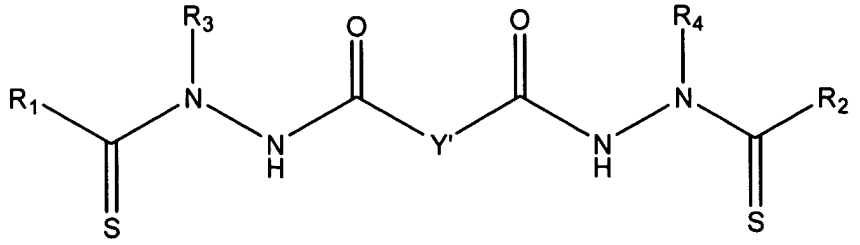
113. The method of Claim 111 wherein R_1 and R_2 are both substituted or unsubstituted C3-C8 cyclic aliphatic group and R_3 and R_4 are methyl, ethyl, phenyl, or thienyl.

114. The method of Claim 114 wherein R_7 and R_8 are both methyl or wherein R_7 and R_8, taken together, are propylene or butylene.

115. The method of Claim 114 wherein R_7 is -H and R_8 is lower alkyl, thienyl, phenyl or benzyl.

116. The method of Claim 114 wherein R_1 and R_2 are both a C3-C8 cyclic aliphatic substituted with one or more groups selected from -OH, -Br, -Cl, -I, -F, -OR^a, -$OCOR^a$, -COR^a, -CN, -NO_2, -COOH, -SO_3H, -NH_2, -NHR^a, -$N(R^aR^b)$, -$COOR^a$, -CHO, -$CONH_2$, -$CONHR^a$, -$CON(R^aR^b)$, -$NHCOR^a$, -$NRCOR^a$, -$NHCONH_2$, -$NHCONR^aH$, -$NHCON(R^aR^b)$, -NR^cCONH_2, -NR^cCONR^aH, -$NR^cCON(R^aR^b)$, -$C(=NH)$-NH_2, -$C(=NH)$-NHR^a, -$C(=NH)$-$N(R^aR^b)$, -$C(=NR^c)$-NH_2, -$C(=NR^c)$-NHR^a, -$C(=NR^c)$-$N(R^aR^b)$, -NH-$C(=NH)$-NH_2, -NH-$C(=NH)$-NHR^a, -NH-$C(=NH)$-$N(R^aR^b)$, -NH-$C(=NR^c)$-NH_2, -NH-$C(=NR^c)$-NHR^a, -NH-$C(=NR^c)$-$N(R^aR^b)$, -NR^dH-$C(=NH)$-NH_2, -NR^d-$C(=NH)$-NHR^a, -NR^d-$C(=NH)$-$N(R^aR^b)$, -NR^d-$C(=NR^c)$-NH_2, -NR^d-$C(=NR^c)$-NHR^a, -NR^d-$C(=NR^c)$-$N(R^aR^b)$, -$NHNH_2$, -$NHNHR^a$, -NHR^aR^b, -SO_2NH_2, -SO_2NHR^a, -$SO_2NR^aR^b$, -$CH=CHR^a$, -$CH=CR^aR^b$, -$CR^c=CR^aR^b$,-$CR^c=CHR^a$, -$CR^c=CR^aR^b$, -CCR^a, -SH, -SR^a, -$S(O)R^a$, -$S(O)_2R^a$, alkyl groups, substituted alkyl group, non-aromatic heterocyclic group, substituted non-aromatic heterocyclic group, benzyl group, substituted benzyl group, aryl group or substituted aryl group wherein R^a-R^d are each independently an alkyl group, substituted alkyl group, benzyl, substituted benzyl, aromatic or substituted aromatic group, or,-NR^aR^d , taken together, can also form a substituted or unsubstituted non-aromatic heterocyclic group.

117. A method of treating a subject with cancer, said method comprising administering to the subject an effective amount of taxol or a taxol analog and an effective amount of a compound represented by the following structural formula:



or a physiologically acceptable salt thereof, wherein:

Y' is a covalent bond or $-CR_7R_8-$;

R_1 and R_2 are both a substituted or unsubstituted aliphatic group;

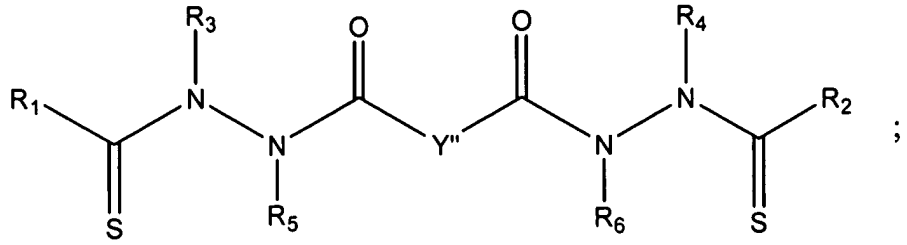
R_3 and R_4 are both -H, methyl or ethyl; and

R_7 is -H and R_8 is -H or methyl.

118. The method of Claim 117 wherein R_1 and R_2 are both C3-C8 cyclic aliphatic group substituted with one or more groups selected from -OH, -Br, -Cl, -I, -F, $-OR^a$, $-O-COR^a$, $-COR^a$, -CN, $-NO_2$, -COOH, $-SO_3H$, $-NH_2$, $-NHR^a$, $-N(R^aR^b)$, $-COOR^a$, -CHO, $-CONH_2$, $-CONHR^a$, $-CON(R^aR^b)$, $-NHCOR^a$, $-NRCOR^a$, $-NHCONH_2$, $-NHCONR^aH$, $-NHCON(R^aR^b)$, $-NR^cCONH_2$, $-NR^cCONR^aH$, $-NR^cCON(R^aR^b)$, $-C(=NH)-NH_2$, $-C(=NH)-NHR^a$, $-C(=NH)-N(R^aR^b)$, $-C(=NR^c)-NH_2$, $-C(=NR^c)-NHR^a$, $-C(=NR^c)-N(R^aR^b)$, $-NH-C(=NH)-NH_2$, $-NH-C(=NH)-NHR^a$, $-NH-C(=NH)-N(R^aR^b)$, $-NH-C(=NR^c)-NH_2$, $-NH-C(=NR^c)-NHR^a$, $-NH-C(=NR^c)-N(R^aR^b)$, $-NR^dH-C(=NH)-NH_2$, $-NR^d-C(=NH)-NHR^a$, $-NR^d-C(=NH)-N(R^aR^b)$, $-NR^d-C(=NR^c)-NH_2$, $-NR^d-C(=NR^c)-NHR^a$, $-NR^d-C(=NR^c)-N(R^aR^b)$, $-NHNH_2$, $-NHNHR^a$, $-NHR^aR^b$, $-SO_2NH_2$, $-SO_2NHR^a$, $-SO_2NR^aR^b$, $-CH=CHR^a$, $-CH=CR^aR^b$, $-CR^c=CR^aR^b$, $-CR^c=CHR^a$, $-CR^c=CR^aR^b$, $-CCR^a$, -SH, $-SR^a$, $-S(O)R^a$, $-S(O)_2R^a$, alkyl groups, substituted alkyl group, non-aromatic heterocyclic group, substituted non-aromatic heterocyclic group, benzyl group, substituted benzyl group, aryl group or substituted aryl group wherein R^a-R^d are each independently an alkyl group, substituted alkyl group, benzyl, substituted benzyl, aromatic or substituted aromatic group, or,$-NR^aR^d$, taken together, can also form a substituted or unsubstituted non-aromatic heterocyclic group.

119. The method of Claim 89 wherein R_5 and R_6 are the same.

120. The method of Claim 119 wherein the compound is represented by the following structural formula:



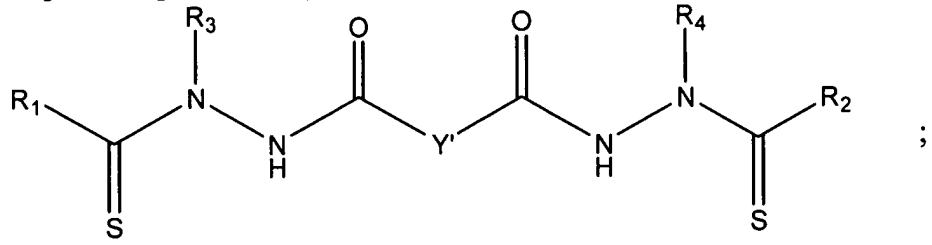
wherein Y" is a covalent bond or $-CH_2-$.

121. The method of Claim 120 wherein R_5 and R_6 are both a lower alkyl group or a phenyl group.

122. The method of Claim 121 wherein R_5 and R_6 are both a methyl group.

123. The method of Claim 120 wherein R_1 and R_2 are both a C3-C8 cyclic aliphatic or a substituted C3-C8 cyclic aliphatic group; R_3 and R_4 are both a lower alkyl group; and R_5 and R_6 are both a lower alkyl group.

124. A method of treating a subject with cancer, said method comprising administering to the subject an effective amount of taxol or a taxol analog and an effective amount of a compound represented by the following structural formula:



or a physiologically acceptable salt thereof, wherein Y' is a covalent bond or $-CR_7R_8-$; and wherein

a) R_1 and R_2 are both cyclopropyl; R_3 and R_4 are both methyl; R_7 and R_8 are both -H;

b) R_1 and R_2 are both cyclopropyl; R_3 and R_4 are both ethyl; R_7 and R_8 are both H;

c) R_1 and R_2 are both cyclopropyl; R_3 and R_4 are both methyl; R_7 is methyl; R_8 is -H;

d) R_1 and R_2 are both 1-methylcyclopropyl; R_3 and R_4 are both methyl; Y' is bond;

e) R_1 and R_2 are both 1-methylcyclopropyl; R_3 and R_4 are both methyl; R_7 and R_8 are both -H;

f) R_1 and R_2 are both 1-methylcyclopropyl; R_3 and R_4 are both methyl; R_7 is methyl and R_8 is -H;

g) R_1 and R_2 are both 1-methylcyclopropyl; R_3 and R_4 are both methyl; R_7 is ethyl and R_8 is -H;

h) R_1 and R_2 are both 1-methylcyclopropyl; R_3 and R_4 are both methyl; R_7 is *n*-propyl and R_8 is -H;

i) R_1 and R_2 are both 1-methylcyclopropyl; R_3 and R_4 are both methyl; R_7 and R_8 are both methyl;

j) R_1 and R_2 are both 1-methylcyclopropyl; R_3 and R_4 are both ethyl; R_7 and R_8 are both -H;

k) R_1 and R_2 are both 1-methylcyclopropyl; R_3 is methyl, and R_4 is ethyl; R_7 and R_8 are both -H;

l) R_1 and R_2 are both 2-methylcyclopropyl; R_3 and R_4 are both methyl; R_7 and R_8 are both -H;

m) R_1 and R_2 are both 2-phenylcyclopropyl; R_3 and R_4 are both methyl; R_7 and R_8 are both -H;

n) R_1 and R_2 are both 1-phenylcyclopropyl; R_3 and R_4 are both methyl; R_7 and R_8 are both -H;

o) R_1 and R_2 are both cyclobutyl; R_3 and R_4 are both methyl; R_7 and R_8 are both -H;

p) R_1 and R_2 are both cyclopentyl; R_3 and R_4 are both methyl; R_7 and R_8 are both -H;

q) R_1 and R_2 are both cyclohexyl; R_3 and R_4 are both methyl; R_7 and R_8 are both -H;

r) R_1 and R_2 are both cyclohexyl; R_3 and R_4 are both phenyl; R_7 and R_8 are both -H;

s) R_1 and R_2 are both methyl; R_3 and R_4 are both methyl; R_7 and R_8 are both -H;

t) R_1 and R_2 are both methyl; R_3 and R_4 are both *t*-butyl; R_7 and R_8 are both -H;

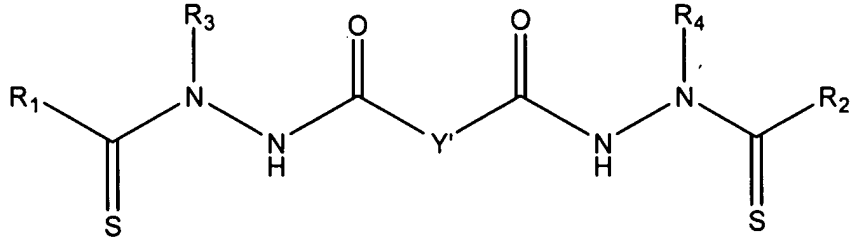
u) R_1 and R_2 are both methyl; R_3 and R_4 are both phenyl; R_7 and R_8 are both -H;

v) R_1 and R_2 are both *t*-butyl; R_3 and R_4 are both methyl; R_7 and R_8 are both -H;

w) R_1 and R_2 are ethyl; R_3 and R_4 are both methyl; R_7 and R_8 are both -H; or

x) R_1 and R_2 are both *n*-propyl; R_3 and R_4 are both methyl; R_7 and R_8 are both -H.

125. A method of treating a subject with cancer, said method comprising administering to the subject an effective amount of taxol or a taxol analog and an effective amount of a compound represented by the following structural formula:



;

or a physiologically acceptable salt thereof, wherein Y' is a covalent bond or $-CR_7R_8-$, wherein:

a) R_1 and R_2 are both cyclopropyl; R_3 and R_4 are both methyl; R_7 and R_8 are both -H;

b) R_1 and R_2 are both 1-methylcyclopropyl; R_3 and R_4 are both methyl; Y' is bond;

c) R_1 and R_2 are both 1-methylcyclopropyl; R_3 and R_4 are both ethyl; R_7 and R_8 are both -H;

d) R_1 and R_2 are both 1-methylcyclopropyl; R_3 and R_4 are both methyl; R_7 is methyl; R_8 is -H;

e) R_1 and R_2 are both 1-methylcyclopropyl; R_3 and R_4 are both ethyl; R_7 and R_8 are both -H; or

f) R_1 and R_2 are both methyl; R_3 and R_4 are both methyl; R_7 and R_8 are both –H.